

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the above amendments and in light of the following remarks and discussion, is respectfully requested.

Claims 1 and 15 are pending in this application. By this amendment, the specification and Claims 1, 2, 3, 5-9, 11-13, and 15 are amended.

I. THE ABSTRACT SATISFIES FORMAL REQUIREMENTS

The Abstract is objected to for informalities. Accordingly, the Abstract is amended. Withdrawal of the objection to the Abstract is respectfully requested.

II. THE DRAWINGS SATISFY FORMAL REQUIREMENTS

The drawings are objected to for not including a brief description of the drawings in the specification. Accordingly, the specification is amended to include a brief description of the drawings. Withdrawal of the objection to the drawings is respectfully requested.

III. CLAIMS 1-5 AND 15 SATISFY THE REQUIREMENTS OF 35 U.S.C. §112, SECOND PARAGRAPH

Claims 1-5 and 15 are rejected under 35 U.S.C. §112, second paragraph for being indefinite. Accordingly, the claims are amended to clarify the features of the claims for the Examiner. Withdrawal of the rejection of Claims 1-5 under 35 U.S.C. §112, second paragraph is respectfully requested.

IV. CLAIMS 6-14 SATISFY FORMAL REQUIREMENTS

Claims 6-14 are objected to for informalities. Accordingly, the claims are amended. Withdrawal of the objection to Claims 6-14 is respectfully requested.

V. THE CLAIMS DEFINE PATENTABLE SUBJECT MATTER

Claims 1 and 15 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent 6,409,886 to Matsumoto et al. in view of Applicants' admitted prior art, EP1097742 and DE10200583. This rejection is respectfully traversed.

The present invention is directed to providing an improved process for rectificatively separating fluids comprising (meth)acrylic monomers in a rectification column. To this end, independent Claim 1 recites, in part, that the process for separating the fluids includes effecting the direct cooling of the vapor in the condensation space in at least two spray zones, which are spatially successive and are flowed through by vapor, by spraying supercooled top condensate comprising added polymerization inhibitor, and the temperature of the sprayed supercooled top condensate becoming lower from spray zone to spray zone in the flown direction of the vapor. Claim 15 recites features similar to Claim 1.

As discussed on page 3 of the present application, it is problematic in that (meth)acrylic monomers in condensed phase exhibit an increased tendency to undesired polymerization. Accordingly, the occurrence in rectification columns of condensate which comprise (meth)acrylic monomers and is free of polymerization inhibitor is to be avoided. Matsumoto et al. is directed to providing specific nozzles whose components can be used to spray a rectification column with polymerization inhibitor-containing solution.

EP1097742 recommends cooling of the relevant vapors externally. That is, EP1097742 proposes direct cooling such as jetting in supercooled condensate in a cooling apparatus spatially separated from the rectification column to separate the offgas and constituents to be condensed. EP1097742 recommends a downstream connection of a separate aftercooler. However, a disadvantage is that there is a necessity of connecting a vapor pipe and a need for additional apparatus in the form of an aftercooler.

DE10200583 discloses that the vapor condensation integrated into the top of the column is effected by means of two direct cooling circuits connected in series. The first is operated by a supercooled top condensate which has been condensed beforehand and mixed with a polymerization inhibitor and the second is by way of cooled water. However, this provides the disadvantage that DE10200583 uses two different coolants in the aqueous

condensate resulting from the aqueous direct cooling, including the components of value contained therein, is disposed of in for example, a water treatment plant.

Applicant respectfully asserts that there is no motivation to combine the teachings of Matsumoto et al. with either EP1097742 or DE10200583 as asserted in the Office Action. In fact, Applicant respectfully asserts that only the present application suggests the claimed combination of features. When an obviousness determination is based on multiple prior art references, there must be a showing by the patent examiner of some "teaching, suggestion, or reason" to combine the references. Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (also noting that the "absence of such a suggestion to combine is dispositive in an obviousness determination"). Whether motivation to combine the references is shown is a question of fact. See In re Dembiczak, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, *inter alia*, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. Although a reference need not expressly teach that the disclosure contained therein should be combined with another, see Motorola, Inc. v. Interdigital Tech. Corp., 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997), the showing of combinability, in whatever form, must nevertheless be "clear and particular." Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. "Trade-offs often concern what is feasible, not what is, on balance, desirable. Motivation to combine requires the latter." Winner International Royalty Corp. v. Wang, 53 USPQ2d 1580, 1587 (Fed. Cir. 2000). Interpreting the Supreme Court's decision in Dickinson v. Zurko, 50 USPQ2d 1930 (1999) regarding the standard of review in patent matters, the CAFC determined that when upholding a rejection of a claimed invention in an appeal, the CAFC must find that the decision by the USPTO Board of Appeals and Interferences is

supported by "substantial evidence," In re Gartside, 53 USPQ2d 1769 (Fed. Cir. 2000).

Accordingly, for a proper rejection based on a combination of references, the rejection must be supported by evidence that the motivation to combine references was not merely feasible, but desirable.

Again, Claim 1 recites the direct cooling of the vapor is effected in the condensation space in at least two spray zones which are spatially successive and flowed through by vapor, by spraying supercooled top condensate comprising added polymerization inhibitor, and the temperature of the sprayed supercooled top condensate becomes lower from spray zone to spray zone in the flown direction of the vapor.

There is no advantage that would be obtained by modifying the spray nozzles of Matsumoto et al. with the apparatus taught in EP1097742. Specifically, as discussed above, EP1097742 discloses external cooling of the vapors. As such, the direct cooling by jetting supercooled condensate is performed in a cooling apparatus spatially separated from the rectification column. Accordingly, there is a need for a connecting vapor pipe and additional apparatus in the form of an aftercooler. Thus, adding the features of EP1097742 to the disclosure of Matsumoto et al. would require additional apparatus and increase the cost of the apparatus disclosed in Matsumoto et al.

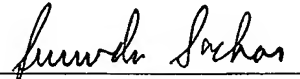
Additionally, there would be no advantage that would be obtained by modifying Matsumoto et al. with the features recited in DE10200583. Specifically, DE10200583 discloses that the vapor condensation integrated into the top of the column is effected by means of two direct cooling circuits connected in series. The first supercooled top condensate and the second cooled water. Accordingly, modifying Matsumoto et al. to include two cooling circuits would increase the cost of Matsumoto et al. and the complexity of the apparatus in order to provide two coolants.

Thus, for at least the above reasons, Applicant respectfully requests that the rejection of independent Claims 1 and 15 and dependent Claims 2-14 under 35 U.S.C. §103(a) be withdrawn. Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application believed to be in condition for formal allowance. A notice of allowance for Claims 1-15 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below-listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)
KMM/rac

Kevin McKinley
Registration No. 43,794

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SURINDER SACHAR
REGISTRATION NO. 34,423